

Reprocessing and the proliferation of nuclear weapons

The nuclear industry refers to extracting plutonium or other specific isotopes from nuclear fuel waste as “reprocessing” or “recycling.” It is highly contaminating, practiced in only a few countries, and linked to nuclear proliferation and nuclear weapons.

There has never been commercial reprocessing in Canada. The limited reprocessing done at the federal government's Chalk River Nuclear Laboratory has left a legacy of nuclear contamination. Canada is currently reviewing its radioactive waste policy. The revised policy must include a formal prohibition on nuclear fuel waste reprocessing in Canada.

Uranium-235 is the key element in all nuclear fission technology, both civilian and military. Without uranium-235, there would be no nuclear weapons of any kind, and no nuclear reactors.

In 1943 Canada secretly partnered with the US and the UK to develop the world's first atomic bombs. At that time, Canada had the only readily available supply of uranium in the western world—indispensable for the WWII A-bomb project.

The world's first nuclear reactors were built to produce plutonium for bombs. Indeed, all uranium-fueled reactors automatically produce plutonium as a by-product.

The Atomic Bomb dropped on August 9, 1945, on the city of Nagasaki in Japan, used an explosive made of plutonium.

All existing nuclear weapons require either highly enriched uranium or plutonium. These are the materials that serve as primary nuclear explosive materials in the world's nuclear arsenals.

Canada was the world's largest exporter of uranium during WWII and the rest of the 20th century. Virtually all of the uranium mined in Canada was used for nuclear weapons until 1965.

REPROCESSING = PLUTONIUM FACT SHEET #3

Reprocessing and nuclear weapons proliferation

For about five years after the end of WWII, there were two reprocessing plants at Chalk River.

For two decades after the end of WWII, most of the plutonium created in Canada's research reactors at Chalk River was sold to the US military for use in nuclear weapons.

Plutonium has become the most widely used nuclear explosive material, used as a trigger even for H-bombs. Once plutonium has been extracted from fiercely radioactive used reactor fuel, it can be used as a nuclear explosive or as a nuclear fuel.

Uranium enrichment is different than reprocessing. Uranium mined from the Earth – so-called “natural” uranium – must be greatly “enriched” before it can be used as a nuclear explosive. Both uranium enrichment and nuclear fuel waste reprocessing are extremely sensitive technologies. Any country or subnational group having such technology can, in principle, acquire the nuclear explosive materials needed to build up a nuclear arsenal or engage in nuclear terrorism.

If highly enriched uranium or plutonium is stolen after it has been produced, it can be used to make powerful nuclear weapons or explosive devices with moderate effort.

In 1974 India exploded its first A-Bomb using plutonium produced in a research reactor given as a gift by Canada. The US gave India reprocessing technology, intended for “peaceful purposes.”

The proliferation risk of extracting plutonium through reprocessing is obvious and grave.

**REPROCESSING=
PLUTONIUM=
NUCLEAR WEAPONS**

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